The main purpose of this study was to check the validity of this simple criterion over a reasonably wide range of velocities and aspect ratios. The first part of the paper gives the results of an experimental investigation using three ducts of different forms but each of 8 in. equivalent diameter. The duct sizes were 8 in. ID round, 8 in. square and 4.5 in. by 36 in. rectangular (8:1 aspect ratio). Air velocities used ranged from 300 to 9310 fpm.

For most practical purposes the three ducts were found to be identical in flow resistance at equal velocities.